

PATENT COOPERATION TREATY

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From the
INTERNATIONAL PRELIMINARY EXAMINING AUTHORITY

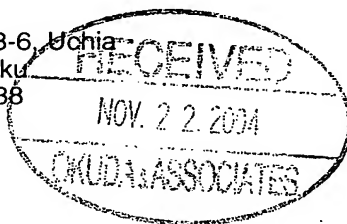
PCT

NOTIFICATION OF TRANSMITTAL OF THE INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Rule 71.1)

To:

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(day/month/year) 16.11.2004

Applicant's or agent's file reference
P31612-PO

A 1057 MT

IMPORTANT NOTIFICATION

International application No.
PCT/JP 03/12800

International filing date (day/month/year)
06.10.2003

Priority date (day/month/year)
17.10.2002

Applicant
MATSUSHITA ELECTRIC INDUSTRIAL CO., LTD. et al.

1. The applicant is hereby notified that this International Preliminary Examining Authority transmits herewith the international preliminary examination report and its annexes, if any, established on the international application.
2. A copy of the report and its annexes, if any, is being transmitted to the International Bureau for communication to all the elected Offices.
3. Where required by any of the elected Offices, the International Bureau will prepare an English translation of the report (but not of any annexes) and will transmit such translation to those Offices.

4. REMINDER

The applicant must enter the national phase before each elected Office by performing certain acts (filing translations and paying national fees) within 30 months from the priority date (or later in some Offices) (Article 39(1)) (see also the reminder sent by the International Bureau with Form PCT/IB/301).

Where a translation of the international application must be furnished to an elected Office, that translation must contain a translation of any annexes to the international preliminary examination report. It is the applicant's responsibility to prepare and furnish such translation directly to each elected Office concerned.

For further details on the applicable time limits and requirements of the elected Offices, see Volume II of the PCT Applicant's Guide.

The applicant's attention is drawn to Article 33(5), which provides that the criteria of novelty, inventive step and industrial applicability described in Article 33(2) to (4) merely serve the purposes of international preliminary examination and that "any Contracting State may apply additional or different criteria for the purposes of deciding whether, in that State, the claimed inventions is patentable or not" (see also Article 27(5)). Such additional criteria may relate, for example, to exemptions from patentability, requirements for enabling disclosure, clarity and support for the claims.

Name and mailing address of the international
preliminary examining authority:



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PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT (PCT Article 36 and Rule 70)

Applicant's or agent's file reference P31612-PO		FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/PEA/416)	
International application No. PCT/JP 03/12800	International filing date (<i>day/month/year</i>) 06.10.2003	Priority date (<i>day/month/year</i>) 17.10.2002	
International Patent Classification (IPC) or both national classification and IPC G11B7/125			
Applicant MATSUSHITA ELECTRIC INDUSTRIAL CO., LTD. et al.			
<p>1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.</p> <p>2. This REPORT consists of a total of 5 sheets, including this cover sheet.</p> <p><input checked="" type="checkbox"/> This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).</p> <p>These annexes consist of a total of 4 sheets.</p>			
<p>3. This report contains indications relating to the following items:</p> <p>I <input checked="" type="checkbox"/> Basis of the opinion</p> <p>II <input type="checkbox"/> Priority</p> <p>III <input type="checkbox"/> Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</p> <p>IV <input type="checkbox"/> Lack of unity of invention</p> <p>V <input checked="" type="checkbox"/> Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</p> <p>VI <input type="checkbox"/> Certain documents cited</p> <p>VII <input type="checkbox"/> Certain defects in the international application</p> <p>VIII <input type="checkbox"/> Certain observations on the international application</p>			
Date of submission of the demand 23.04.2004		Date of completion of this report 16.11.2004	
Name and mailing address of the international preliminary examining authority:  European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465		Authorized Officer Stemmer, M Telephone No. +49 89 2399-2282	



**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT**

International application No. PCT/JP 03/12800

I. Basis of the report

1. With regard to the **elements** of the international application (*Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17)*):

Description, Pages

1-10, 12-32 as originally filed
11 received on 04.10.2004

Claims, Numbers

2-10 as originally filed
1 received on 12.07.2004
11 received on 04.10.2004

Drawings, Sheets

1/5-5/5 as originally filed

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: , which is:

- ☐ the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).
☐ the language of publication of the international application (under Rule 48.3(b)).
☐ the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
☐ filed together with the international application in computer readable form.
☐ furnished subsequently to this Authority in written form.
☐ furnished subsequently to this Authority in computer readable form.
☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

- ☐ the description, pages:
☐ the claims, Nos.:
☐ the drawings, sheets:

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT**

International application No. PCT/JP 03/12800

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)).

(Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)

6. Additional observations, if necessary:

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes: Claims	1-11
	No: Claims	
Inventive step (IS)	Yes: Claims	1-11
	No: Claims	
Industrial applicability (IA)	Yes: Claims	1-11
	No: Claims	

2. Citations and explanations

see separate sheet

Re Item V

Reasoned statement with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Reference is made to the following document:

D1: EP-A-0 385 537 (PHILIPS NV) 5 September 1990 (1990-09-05)

2. The document D1 is regarded as being the closest prior art to the subject-matter of claim 1, and discloses (the references in parentheses applying to this document):

An optical disc drive comprising: a laser light source (L) for emitting a laser beam of which the intensity is changeable with the amount of drive current supplied thereto; a first photodetector (D1-D4), which receives a portion of the laser beam that has been emitted from the laser light source and then reflected from an optical disc (20), thereby generating a readout signal ; a second photodetector (M), which receives another portion of the laser beam that has been emitted from the laser light source, generates an electric signal of which the level represents the power of the laser beam received, and outputs the electric signal as a light quantity detection signal ; and a feedback control loop (40), which compares the level of the light quantity detection signal (MON) with a predetermined target value (MREF) and controls the amount of the drive current so that the level of the light quantity detection signal approaches the target value, wherein, the target value is changed so as to compensate for a variation of the sensitivity of the second photodetector (p 6 l 28-32) , thereby controlling the power of the laser beam emitted from the laser light source (p 4 l 16-49: p 6 l 5-32; fig 1,2,4).

The subject-matter of claim 1 therefore differs from this known D1 in that: the target value is changed when reading data from the optical disc and further said variation of the sensitivity of the second photodetector being detected when a write power optimization is conducted.

The subject-matter of the present claim 1 provides thus an advantage over the prior art in that the compensation for a variation of the sensitivity of the second photodetector can be conducted during read write operation and not only under manual adjustment respectively the monitor sensitivity determining procedure disclosed in D1 (p 6 l 38-44).

The combination of features of claim 1 is neither disclosed nor rendered obvious by the available prior art.

The subject-matter of present claim 1 could be therefore considered as both novel and inventive (Art 33 (2) and (3) PCT).

This applies mutatis mutandis to claim 11 when replacing the feature "when a write power optimization is conducted" of claim 1 by the corresponding feature of claim 11 : "while writing data to the optical disc".

3. Claims 2-10 are dependent on claim 1 and as such also meet the requirements of the PCT with respect to novelty and inventive step.

Additional remarks

1. Contrary to the requirements of Rule 5.1(a)(ii) PCT, the relevant background art disclosed in the document D1 is not mentioned in the description, nor is this document identified therein.
2. Independent claims 1 and 11 are not in the two-part form in accordance with Rule 6.3(b) PCT, which in the present case would be appropriate, with those features known in combination from the prior art being placed in the preamble (Rule 6.3(b)(i) PCT) and with the remaining features being included in the characterising part (Rule 6.3(b)(ii) PCT).
3. The features of the claims are not provided with reference signs placed in parentheses (Rule 6.2(b) PCT).
4. Claim 11 contains the following feature "decreasing the target value as the sensitivity of the second photodetector decreases; and regulating the amount of the drive current such that the level of the light quantity detection signal approaches the decreased target value while reading the data from the optical disc" which appears to correspond by its scope to the following feature of claim 1 "in reading data from the optical disc, the target value is changed so as to compensate for a variation of the sensitivity of the second photodetector".

To reinforce unity the same terms designating the same features should be used.

drive current supplied thereto. The first photodetector preferably receives a portion of the laser beam that has been emitted from the laser light source and then reflected from an optical disc, thereby generating a readout signal. The second photodetector preferably receives another portion of the laser beam

5 that has been emitted from the laser light source, generates an electric signal of which the level represents the power of the laser beam received, and outputs the electric signal as a light quantity detection signal. The feedback control loop preferably compares the level of the light quantity detection signal with a predetermined target value and preferably controls the amount of the

10 drive current so that the level of the light quantity detection signal approaches the target value. The driving method preferably includes the steps of: sensing a decrease in the sensitivity of the second photodetector while writing data to the optical disc; decreasing the target value as the sensitivity of the second photodetector decreases ; and regulating the amount of the drive current such

15 that the level of the light quantity detection signal approaches the decreased target value while reading the data from the optical disc, thereby controlling the power of the laser beam emitted from the laser light source.

Other features, elements, processes, steps, characteristics and advantages of the present invention will become more apparent from the

20 following detailed description of preferred embodiments of the present

CLAIMS

1. (Amended) An optical disc drive comprising:

a laser light source for emitting a laser beam of which the intensity is changeable with the amount of drive current supplied thereto;

5 a first photodetector, which receives a portion of the laser beam that has been emitted from the laser light source and then reflected from an optical disc, thereby generating a readout signal;

a second photodetector, which receives another portion of the laser beam that has been emitted from the laser light source, generates an electric signal of
10 which the level represents the power of the laser beam received, and outputs the electric signal as a light quantity detection signal; and

a feedback control loop, which compares the level of the light quantity detection signal with a predetermined target value and controls the amount of the drive current so that the level of the light quantity detection signal approaches the
15 target value,

wherein in reading data from the optical disc, the target value is changed so as to compensate for a variation of the sensitivity of the second photodetector, thereby controlling the power of the laser beam emitted from the laser light source, said variation of the sensitivity of the second photodetector being
20 detected when a write power optimization is conducted.

wherein the corrected target value is used in reading the data from the optical disc.

10. The optical disc drive of claim 9, further comprising:

5 decision means for obtaining a timer upper limit value using the value stored on the memory element to represent the difference; and

a timer, which keeps counting until its count reaches the timer upper limit value,

wherein when the count of the timer reaches the timer upper limit value,
10 the value stored on the memory element to represent the difference is updated into a new value.

11. (Amended) A method for driving an optical disc drive that includes a laser light source, a first photodetector, a second photodetector and a feedback
15 control loop, wherein the laser light source emits a laser beam of which the intensity is changeable with the amount of drive current supplied thereto; the first photodetector receives a portion of the laser beam that has been emitted from the laser light source and then reflected from an optical disc, thereby generating a readout signal; the second photodetector receives another portion of
20 the laser beam that has been emitted from the laser light source, generates an

electric signal of which the level represents the power of the laser beam received, and outputs the electric signal as a light quantity detection signal; and the feedback control loop compares the level of the light quantity detection signal with a predetermined target value and controls the amount of the drive current so that

5 the level of the light quantity detection signal approaches the target value,

the method comprising the steps of:

sensing a decrease in the sensitivity of the second photodetector while writing data to the optical disc;

decreasing the target value as the sensitivity of the second photodetector

10 decreases ; and

regulating the amount of the drive current such that the level of the light quantity detection signal approaches the decreased target value while reading the data from the optical disc, thereby controlling the power of the laser beam emitted from the laser light source.